

The structure of tenorite previously described by Niggli⁷ was based on powder photographs only and is not correct. The conclusion of Kalkowsky⁸ and of Niggli that tenorite is triclinic, pseudomonoclinic, is without foundation in experiment, and is erroneous. Niggli was apparently misled by the erroneous work of Kalkowsky; there is also the further extenuating circumstance for Niggli's failure to arrive at the correct structure that his conclusion was based on some very old powder photographs on which the crucial lines were probably missing. These lines are readily brought out, however, by the powerful radiation available today.

BOTANY.—*Two new grasses of the genus Stipa from Western United States.*¹ JASON R. SWALLEN, Bureau of Plant Industry.

Stipa latiglumis Swallen sp. nov.

Perennis; culmi graciles, erecti, 50–110 cm. alti, strigosi; vaginae pubescentes internodiis breviores; laminae planae 5–25 cm. longae, usque ad 3 mm. latae, supra pilosae, subtus glabrae; ligula 1–4 mm. longa; panícula 15–30 cm. longa, ramis gracilibus appressis usque ad 10 cm. longis; glumae subaequales 12–15 mm. longae, 3 mm. latae, firmae, acutae vel acuminatae, 3-nerves; lemma 8–9 mm. longum, dense pilosum, callo 1 mm. longo pungenti, arista bigeniculata plumosa.



Fig. 1



Fig. 2

Fig. 1.—*Stipa latiglumis*, floret $\times 5$ dia. and nat. size. From type specimen.
Fig. 2.—*Stipa lobata*, floret $\times 5$ dia. and nat. size; summit of floret showing lobe $\times 10$ dia. From type specimen.

⁷ Zeit. f. Krist., 57: 253. 1922.

⁸ Zeit. Kryst. Min., 3: 279. 1879.

¹ Received January 17, 1933.

Perennial; culms slender, erect, 50–110 cm. tall, strigose below, nearly smooth above; sheaths, at least the lower, pubescent, shorter than the internodes; blades flat or loosely involute, 5–25 cm. long, not more than 3 mm. wide, hairy on the upper surface, smooth on the lower; ligule membranaceous 1–4 mm. long; panicles loosely flowered, 15–30 cm. long, hairy in the axils, the branches distant, slender, the lower ones as much as 10 cm. long; glumes about equal, 12–15 mm. long, 1.5 mm. broad from keel to margin, firm, rather abruptly acute or acuminate, 3-nerved, tinged with purple; lemmas 8–9 mm. long, densely hairy, the sharp callus 1 mm. long, the awn 3.5–4.5 cm. long, twice bent, the first two segments twisted, plumose, the third straight, scabrous, or pubescent below.

Type in the U. S. National Herbarium no. 992334, collected at Camp Lost Arrow, Yosemite Valley, California, altitude 4,000–4,500 feet, June 22, 1911, by LeRoy Abrams (no. 4469).

Specimens of *Stipa latiglumis* have been referred previously to *S. californica* Merr. & Davy and to *Stipa elmeri* Piper & Brodie. From the first it differs in having pubescent culms and sheaths, and longer, more plumose awns, from the second in the usually less dense pubescence, and from both in having firmer, broader, purplish glumes and longer lemmas. In *S. californica* the culms and sheaths are glabrous and the awns are 2.5–3.5 cm. long; the pubescence of *S. elmeri* is conspicuous without a lens, but that of *S. latiglumis* is scarcely evident except with a lens; and in both *S. californica* and *S. elmeri* the glumes are thin, pale, and not more than 1 mm. wide from keel to margin, and the lemmas are only 6–7 mm. long.

Central California, at medium altitudes.

Yosemite Valley: *Bolander* 6099, *Abrams* 4469, *Jepson* 4280; *Dunlap* to Millwood, *Griffiths* 4680.

Stipa lobata Swallen, sp. nov.

Perennis; culmi dense caespitiosi, erecti, 35–85 cm. alti, glabri, infra paniculam scaberuli; vaginae internodiis longiores, scaberulae, marginibus pilosis; laminae basi planae, attenuatae, usque ad 50 cm. longae, basi 1–4 mm. latae, supra scabrae, subtus laeves; ligula 0.5 mm. longa; panicula 10–18 cm. longa, ramis appressis multifloris; glumae subaequales, acuminatae, 9–10 mm., raro usque ad 12 mm., longae, 3-nerves; lemma 6 mm. longum, dense pilosum, lobatum, callo obtuso; arista bigeniculata, 12–16 mm. longa, hispida.

Perennial; culms densely tufted, erect, 35–85 cm. tall, glabrous, scaberulous below the panicle; sheaths longer than the internodes, or the upper ones shorter, scaberulous, the margins sparsely pilose; blades flat or loosely folded toward the base, long-attenuate to a fine involute tip, as much as 50 cm. long, 1–4 mm. wide at the base, scabrous on the upper surface, nearly smooth beneath; ligule less than 0.5 mm. long; panicles 10–18 cm. long, the branches appressed, rarely more than 5 cm. long, several-flowered; glumes subequal, or the first a little longer, acuminate, 9–10 mm., the second sometimes as much as 12 mm., long, both 3-nerved, scabrous; lemma 6 mm. long, brownish, evenly densely hairy, the hairs 1–2 mm. long, the callus very short and blunt, the summit 2-lobed, the lobes 0.8–1.5 mm. long, awned from between the lobes, the awn 12–16 mm. long, twice bent, the first two segments twisted, appressed hispid, the third segment straight, scabrous.

Type in the U. S. National Herbarium no. 905722, collected on a rocky hill, Ranger Station, Queen, Guadalupe Mountains, New Mexico, altitude

6,000–7,000 feet, September 3–6, 1915, by A. S. Hitchcock (Amer. Gr. Nat. Herb. no. 819).

This species has been referred to *Stipa scribneri* Vasey, but differs in having shorter, nearly equal glumes, which are prominently scabrous, shorter awns, and shorter, lobed lemmas, which are evenly hairy all over. In *S. scribneri* the glumes are unequal, the first about 10 mm., the second 15 mm. long, scaberulous, the awns are 17–20 mm., the lemmas are 7–9 mm. long, the lobes of which are less than 0.5 mm. long, and the hairs at the summit are 2 mm. long, conspicuously longer than those on the body.

Rocky hills at medium altitudes, southern Texas and New Mexico.

TEXAS: Chisos Mountains, *Moore & Steyermark* 3362; Guadalupe Mountains, *Moore & Steyermark* 3638; without locality, *Nealley*.

NEW MEXICO: Guadalupe Mountains, *Amer. Gr. Nat. Herb.* no. 819; Filmore Canyon, Organ Mountains, *Hitchcock* 3773.

BOTANY.—*Morphological features of some fungi capturing and killing amoebae.*¹ CHARLES DRECHSLER, Bureau of Plant Industry.

Amoebae developing in agar plate cultures started from plantings of diseased rootlets and other decaying plant materials were found to be captured and killed often in large numbers by various fungi.² A protozoan of large size identified provisionally as *Amoeba verrucosa* was preyed upon by a fungus distinguished by rather short, somewhat tapering, sparingly branched, noticeably but not markedly differentiated conidiophores bearing elongated 2-celled conidia, the latter individually having an empty third cell present as an apical appendage nearly equal in length to the two living cells taken together (Fig. 1, A). Capture was effected by the animal being held fast on short, rather globose, ultimately somewhat yellowish adhesive protuberances borne laterally on prostrate superficial hyphae. At the place of contact the animal's pellicle was soon perforated and a somewhat expanding hyphal outgrowth thrust toward the center of the host where through close successive dichotomous branching in three planes (Fig. 1, B) a fairly intricate complex of swollen elements was produced, which though at first continuous, later with the exhaustion of the protoplasm of the host, became closely septate. A smaller amoeboid organism was captured through adhesion to the prostrate, narrow, non-septate, superficial hyphae of a fungus bearing on short undifferentiated aerial hyphal branches or on short, undifferentiated,

¹ Received March 10, 1933.

² Detailed descriptions and taxonomic discussion of these forms are reserved for a more comprehensive account of predacious fungi which is in preparation.